

# Vertical Circulation

*Vertical circulations are those which furnish means for progress from one level to another. The position of any means of vertical circulation is a matter of great importance because such circulations not only control the plans of the various floors they connect but also condition the plan of each floor since they furnish the major approach to it.*



The simplest type of vertical circulation is **the ramp**, a slopping surface. Ramps vary in slope from 6 to 10%, although 8% should be considered the maximum in those to be used by the public. In a given period, ramps can accommodate huge numbers of people for their progress along them will be as direct and almost as swift as along a level floor. They are, therefore, especially suitable for buildings where crowds must pass at limited intervals. However, because they require a great deal of space, the use of ramps within buildings becomes practical only where great numbers of persons are to be handled or when special conditions make them necessary.

The most common and practical use of ramps is in outdoor architectural designs. Ramps of gentle slope leading from level to level in gardens or parks can produce interesting views. For very steep slopes, the architect may design stepped ramps, that is, ramps interrupted at intervals by vertical steps. In this way, an incline of 20 or even 25% can be effected without the loss of the ramp character.

The second means of vertical circulation is **the stair**. Stairs are used for steeper slopes. The comfort of the climb depends on the number of steps in a single run between landings and on the proportion of the tread width to the riser height. Interior stairs offer problems of great complexity. Types of stairs may vary from curving, spiral or ladder staircase in houses to monumental stairs in buildings. In interiors, the stair without any nosing has a standard 10-inch tread and a 7-inch riser. When nosing is used, the tread width is increased. When the risers are inclined, the length required is diminished and the angle of the stair is made steeper.

**Three main points to remember when designing interior stairs.**

## ❖ Placing

In order to make clear to any observer that an upper floor is an important one, the approaches to it must be

obvious.

## ❖ Direction

The strongest possible emphasis on the upper level is made when the stairs not only occur on the main entrance axis but also follow its direction, indicating that the entrance floor is purely subsidiary.

## ❖ Effect

The dynamic three-dimensional character of stairs and the structure enclosing them offers the designer extraordinary opportunities for evoking visual experiences.

The third means of vertical circulation is **the escalator**, a moving stairway which is especially useful when large numbers of people have to be carried from level to level in a more or less continuous stream. The finish of the escalator, which is usually metal, can form an element of great beauty. The typical escalator layout is to arrange the different runs to give a continuous flow either up or down and to separate the people ascending from those descending.

The fourth means of vertical circulation is **the elevator**. The designing of elevator doors and cabs is a real challenge to the architect. In the first place, the tone set by these important elements does much to establish the prestige of a building. Secondly, because they are always of metal, their design is rich in opportunities for modern effects. In buildings, which serve a large number of people, the elevators are arranged in banks, and the height to which each bank runs is determined by the demands of the individual problem. The grouping of the elevators, in turn, determines the distribution of the circulation pattern on all the floors. Usually they are grouped together in a block in the central or darkest portion of the building.

Since elevator service is periodic in nature, there must be convenient and ample spaces where people may wait. Such lobbies should be separated from the ordinary horizontal circulation so that the persons waiting for an elevator do not obstruct the floor corridors or entrances.